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ABSTRACT

This paper presents and evaluates the broad results of pre-school intervention experiments and programs aimed at fostering the intellectual and social development of "disadvantaged" groups. Among the general findings discussed are (1) there is a "sensitive," or even "critical," period in child development, an age at which a child will be more susceptible to fostering; (2) a dominant share of intelligence develops during early childhood; (3) a gap in IQ between "advantaged" and "disadvantaged" groups exists before school entrance and widens thereafter; (4) "traditional" kindergartens do not protect disadvantaged children from lagging behind or failing in school; and (5) malnutrition or poor health have a marked effect on intellectual development. While studies have shown that IQ may be accelerated through pre-school programs, pre-school is not the "cure-all" it was anticipated to be. On the basis of the evidence available the author concludes that priority attention to pre-school intervention cannot be justified. Rather, priority should be given to educational support to the family unit. The most effective age group for such support is adolescents. An appendix extensively discusses conditions favorable for intervention during adolescence. (Author/RH)

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Priorities in Education: Pre-School; Evidence and Conclusions

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PRIORITIES IN EDUCATION: PRE-SCHOOL; EVIDENCE AND CONCLUSIONS

This paper presents and evaluates the broad results of pre-school intervention experiments and programs aimed at fostering the intellectual and social development of "disadvantaged" groups. It is an outgrowth of the World Bank's interest in identifying priorities for educational interventions. Among the general findings discussed are that there is a "sensitive," or even "critical," period in child development, an age at which a child will be more susceptible to fostering; that a dominant share of intelligence develops during early childhood; that a gap in IQ between "advantaged" and "disadvantaged" groups exists before school entrance and widens thereafter; that "traditional" kindergartens do not protect disadvantaged children from lagging behind or failing in school; and that malnutrition or poor health have a marked effect on intellectual development. While studies have shown that IQ may be accelerated through pre-school programs, preschool is not the "cure-all" it was anticipated to be. Generally, children with initially lower IQs show the largest gains. But, in most studies, it was found that within a few years the children who were not in the special programs made up the difference with the "fostered" group. Very sophisticated and expensive programs have produced longer-term results, but such programs are not feasible in most cases. The results of studies where parents were involved in early childhood development have been promising. Some such studies have shown that with a shorter-term intervention, the IQ gains have been maintained for a longer time than with pre-school programs. On the basis of the evidence available the author concludes that priority to pre-school intervention can not be justified. Rather, priority should be given to educational support to the family unit. The most effective age group for such support are adolecents.

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PREFACE

This paper and an accompanying paper by Roger Grawe have been produced as part of ongoing work in Population and Human Resources Division of the Development Economics Department, and the Education Department to evaluate relative educational investment priorities in different age groups. In view of the increased priority attached to pre-school intervention in recent years, an informal working group within the World Bank was formed to consider whether the pre-school period deserved greater emphasis in its activities in education, nutrition, and health. Foremost among the questions to be considered was the relationship between the timing of the intervention on investment and subsequent productivity. Though little direct longitudinal evidence could be brought to bear, the hypothesis that investments during pre-school years generated outcomes in skills and abilities which themselves subsequently enhanced productivity was considered worthy of investigation. As the Bank is increasingly involved in assisting less-developed countries restructure their educational priorities, an important question was, simply, should more priority be given to the education of disadvantaged pre-school children in an effort to generate a more equitable distribution of outcomes.

To review the evidence on pre-school intervention the Bank invited Professor Moshe Smilansky of Tel Aviv University to participate in a staff seminar in November 1975. Smilansky contended that the results of pre-school intervention experiments and programs, at least as measured by cognitive tests, were inconclusive at best and did not establish a case for investments priority to the pre-school age category. However, Smilansky noted that the more successful experiments had been those involving the participation of parents. Extrapolating from his experience as an educa-

tional policy-maker in Israel, Smilansky proposed, in a preliminary fashion in an annex to this paper, that the need, particularly in modernizing societies, is for greater support to the family unit. The most effective target age for such support, he argued, was adolescence.

The paper by Roger Grawe reviews the role of childhood ability as a determinant of subsequent earnings. Grawe then develops some new empirical evidence on the effects of various family characteristics in fostering abilities in pre-school children. This research reinforces, through a quite different methodological route, Smilansky's conclusion that pre-school outcomes can best be enhanced by support to the existing family structure; in particular, Grawe identifies the status of the mother and income as consistent predictors of ability for children from disadvantaged backgrounds.

A significant limitation to the research reviewed and reported by Smilansky and Grawe is its reliance on experience and data from developed economies. This is tempered somewhat by the focus on disadvantaged groups within these economies but generalizations still cannot be accepted. The papers serve to indicate that too little is yet known concerning the development of intelligence, and its relevance as conventionally measured, to formulate new educational priorities in developing countries. But the weight of the evidence is now that intervention through support of the existing family structure offers the best chance of augmenting the abilities of disadvantaged pre-school children and increasing the likelihood of greater subsequent achievement.

The author would like to express his appreciation to Dov Chernichovsky and Mats Hultin for initiating this paper and for their detailed comments; Martha Grosse, Susan Cochrane, Timothy King, and John Simmons also contributed valuable comments. Of course, none of these individuals are responsible for remaining deficiencies.

I. WHY PRIORITY TO PRESCHOOL?

To present in meaningful way the available evidence on the impact of preschool intervention in fostering disadvantaged children, we must first understand the reasons why priority was given to preschool research and development. Furthermore, to evaluate the mass of evidence that has accumulated, the limitations of that evidence must also be considered.

The wave of preschool research and development originated in the early 60's. It was initiated with great faith and abundant funding (mainly in the U.S.), and many creative and committed psychologists and educators participated in this scientifically unexplored field. The commitment to preschool developed from a variety of sources. Psychologists used theoretical or empirical evidence about the impact of early experiences on later behavior. They utilized assumptions from theories of learning, theories of thinking, and theories of management to construct programs for intervention and fostering. Many of these adaptations may now seem naive, but the social pressure at that time was to create crash programs and extend them on a large scale; longitudinal evidence to evaluate such programs was not available. Educators who had worked mostly in preschools developed for middle-class children assumed that with some adaptation, they could use the same assumptions and practices to benefit disadvantaged populations also. Politicians and administrators -- who were under public presure to produce immediate and large-scale change toward equality of opportunity, democratization of the school system, and social integration -- jumped on the "bandwagon" of promising preliminary results from preschool experiments and made large-scale commitments.

II. LIMITATIONS OF THE EVIDENCE

Evidence from the preschool programs developed under such pressures must, of course, be interpreted cautiously. To evaluate these results, we must identify and discuss the limitations of the evidence. One must be particularly cautious in interpreting this evidence for use in decision-making. Our statements are constrained by such phrases as "assume," "propose," and "seem to be," but in some cases, even such phrases do not express the need for understatement. Also, we should remind the reader that correlations do not prove cause and effect relationship, and statistical significance does not assume educational significance to persons and society. The most important limitations are discussed below.

(a) The research designs and measurement tools are relatively primitive, when they are used to measure the very complex and dynamic configurations involved in the educational fostering of disadvantaged children.

(b) Because there has been almost no large-scale planning, the research projects in human development that have been conducted are nearly impossible to compare. In most cases the samples are different,

different tests were used for similar samples, and information about the initial fostering programs and the follow-through experience is insufficient. Actually the only standardized test that was used in large enough samples for longitudinal evaluation was the Stanford-Binet. So with all its known limitations, there was no choice but to depend on its results.

(c) From hundreds of available experiments in compensatory education in the U.S., only a few were appropriate for comparison and generalization. The criteria for choice included: (1) relatively well-designed experimental and control groups, (2) pre- and post-test evaluations, (3) replications with other comparable age groups, and (4) data on long-range impact. To illustrate this problem, in three large-scale systematic screening attempts by Wargo (1971), Stearns (1971), and E. Gordon (1971), which were commissioned and financed by U.S. federal agencies, the researchers canvassed hundreds of studies and found only a few that seemed to meet the prescribed criteria -- and even then, reservations were raised by those concerned.

(d) In the more relevant evaluations of interventions, which are well-designed longitudinal studies with appropriate experimental and control groups, only small numbers of cases were available in each group. Thus, the necessary differentiations of variables for in-depth understanding of the elements contributing to the effectiveness of fostering are in most cases unavailable.

(e) We focused on measures of cognitive development in most generalizations and interpretations of available results. There were five reasons for this choice. First, cognitive capacity is the dominant recorded deficiency of the disadvantaged groups relative to normative groups. Second, society at an advanced stage of scientific and technological modernization demands increased cognitive capabilities, and those unable to upgrade their level of performance will be considered culturally disadvantaged. Third, the correlations between cognitive measurements and school achievement suggest an impact of low IQ on school failure. Fourth, continued experience of failure in one of the dominant institutions -- school -- contributes to deterioration in the affective domain -- mental health, self-esteem, achievement-motivation, social relations, etc. Finally, although everyone recognizes the importance of the non-cognitive domain, the tools available to evaluate this area are questionable -- in techniques of measurement, available results, and suggested interpretations. Their use in most studies has been either sparse or questionable; and even where interesting data are available, there are many unanswerable questions as to their interpretation for use by decision-makers.

(f) The best available longitudinal evaluative studies followed their subjects only through the early school grades (fourth grade, at the latest). Some psychologists (Herzog, 1974; Palmer, 1976) suggest that this is a limited perspective of the preschool intervention efforts. We also suggest that an attempt should be made to find evidence at adolescence and adulthood that a specific group of children received any benefit from systematic intellectual fostering during early childhood. This is not to contradict the fact that positive experience of young children during elementary education is also a positive contribution. Some of the early childhood program developers (Deutsch, 1974; Gray, 1974) claim that if the impact of their intervention was registered significantly even two years after termination of the program, it should be considered very powerful and beneficial. We present both suggestions because each may be valid in decision-making.

(g) Because of financial restrictions, we limited our consideration to American and Israeli experiments. But available evidence from other developed countries does not seem to produce better results.

(h) The results of adapting or replicating the available approaches in developing countries -- which are the focus of interest for the World Bank -- are unknown. Only an international experiment that supports developing countries to design, process, and evaluate their fostering attempts will provide the necessary complementary contribution to the presently available propositions.

(i) An estimate of the cost effectiveness of specific approaches, without which a policy-oriented evaluation is incomplete, is beyond the scope of this assignment.

Despite these limitations (and more could be added), the generalizations to be made are not invalid. As will be discussed, a systematic trend in most data justifies some basic generalizations. And while there is a need for improving evaluation processes, suggestions for policy orientation must be given careful consideration by those concerned.

III. IN SUPPORT OF PRESCHOOL PRIORITY

The large-scale, and very diversified, attempts at intellectual and social fostering of the disadvantaged produced hundreds of projects that could be used as illustrations. But, to minimize the length of this memorandum, we selected evidence that was: conceptually stronger and presented by a recognized scientist in this field, empirically stronger because it was supported by pre- and post-test data and was based on experimental and control groups, and (where possible) comparatively stronger because it

was based on culturally different groups and at the same time provided similar intervention processes. For specific illustrations, data that would not qualify under these restrictions, but that are relevant in explaining a specific point, will be presented. Other studies that meet the criteria and made significant contributions, but are not crucial to decisions about the topic of priorities, had to be omitted in the interest of saving space.

The evidence most often cited to support preschool programs falls into six broad areas:

(a) Evidence of elasticity, or even a critical period, during cognitive development.

McVicker Hunt, in Intelligence and Experience (1961), accumulated a large body of conceptual and empirical evidence supporting the assumption that the preschool years are more open for long-term impact in the cognitive domain, in contrast to earlier propositions by the Freudian school about the life impact of early experiences on mental health manifestations. Gans (1968) went further and said that visual deprivation not only prevents the development of the critical cells but causes a definite regression. The innate mechanisms are incomplete and must be further developed by appropriate experience during a "critical" period.

The origin of the concept of "critical period" can be traced to data from studies in animal research of "imprinting" by Lorenz (1970-1), Hess (1964), and others. Although no direct and longitudinal evidence of imprinting was available, Darwinian assumptions prompted the theoretical extension from mammals to humans. These extensions were also supported by two clusters of evidence. One was research on mother-child separation and the effect of deprived institutional experience on later development, which dominated the 40's and early 50's (Spitz, 1945; Goldfarb, 1945; Bowlby, 1952; Dennis, 1941; etc.). The other type of evidence came from transformational linguists who held as a basic assumption that man has an inborn, species-specific, acutely sensitive, and intelligently responsible facility for language development during a critical period early in his development (McNeill, 1966; Fodor, 1966; Chomsky, 1966).

(b) Evidence that the dominant share of intelligence develops in early childhood.

Bloom in Stability and Change in Human Characteristics (1964) summarized the evidence from most of the available longitudinal studies of human growth in the U.S. He plotted comparable developmental curves and concluded that (pp. 88-89):

> Many longitudinal studies have been done with measures of general intelligence and scholastic aptitude ...The studies revealed increased stability with increased age. When a number of longitudinal studies are compared with each other, and allowances are made for the reliability

> of the instruments and the variability of samples, a single pattern clearly emerges... Both the correlational data and the absolute scale of intelligence development make it clear that intelligence is a developing function and that the stability of measured intelligence increases with age. Both types of data suggest that in terms of intelligence measured at age 17, about 50 percent of the development takes place between conception and age 4, about 30 percent between ages 4 and 8 and about 20 percent between ages 8 and 17... These results... reveal the changing rate at which intelligence developed, since as much of the development takes place in the first four years of life as in the next 13 years.

(c) Evidence of high correlations between home environment and child's IQ, school achievement, and teacher rating.

Data has been accumulating on this since early post World War II in studies in different countries, which used longitudinal local and national samples. In the early 60's more sophisticated approaches, for example, by Bloom (1964) and his students Wolf (1964) and Dave (1964) on home process variables, contributed to propositions about hypothetical potentialities for more directive home interventions. Also elaborate observations in the homes of disadvantaged samples by anthropologists, sociologists, and psychologists served directly as evidence of the need for home-oriented or institutional intervention in child-rearing.

(d) Evidence of a "cumulative deficit."

Studies in the U.S., various European countries, and Israel showed that a gap between certain ethnic, socio-economic, or geographic groups was evident before school entrance.

Bayley (1965), Francis-Williams and Yule (1967), and Schaefer (1969) -- in the U.S. — did not find significant differences in IQ measurement with the Bayley Infant Mental Test, according to socio-economic background, up to 15 months. Hindley (1965) in England and Smilansky, S. and Shefatiah (1975) in Israel, both using the Brunnete-Lezine infant mental test, found no significant differences at 18 months. But both Hindley and Smilansky, S. and Shefatiah found very significant differences at 3 years. This difference in IQ according to socio-economic background was evident also in the original normative data of Terman (1937) and in the normative data of the Israeli adaption of WPPSI by Lieblich, Ninio, and Kugelmas, where the gap was evident at age 4. This gap increased during elementary education and reached widest proportions during adolescence (In Israel: Ortar, G., 1956; Smilansky, M. and Yam, 1969; in England: Floud and Hallsey; in France: Girard; and in the United States: Deutsch, Goldberg, Coleman, Osborne, etc.). From such evidence (along with the "dominant share" and "critical period"

propositions mentioned previously) it was believed that an effective program during early childhood could "innoculate" children against the "cumulative deficit" disease.

(e) Evidence about the inability of traditional kindergarten to prepare disadvantaged children for the expectations of schooling.

Through specific evaluations of kindergarten and primary grade "products" (Smilansky, S., 1958) -- and from a general realization that although kindergartens for 5-year-olds were available in the U.S., England, France, Israel, and other countries, failure and retardation in primary grades occurred on a large scale for disadvantaged children (Wall, 1956; Smilansky, M., 1957) -- propositions for an earlier Head Start program and specially designed cognitively oriented programs adapted to needs of the disadvantaged have emerged in different countries.

(f) Evidence of the impact of malnutrition and other health conditions on cognitive development.

Evidence has come from the early studies of Pasamanick and Knobloch (1958), Kawi (1959), and Kawi and Pasamanick (1959) on the relationship between prenatal and perinatal complications and reading problems. The Birch study (1970) demonstrated the impact of child health in the Caribbean area, the Werner and Muralidharan study (1970) commented that malnutrition has a marked effect on intellectual as well as other development (e.g., head circumference and visual-motor development), and an expert group of the American Academy of Sciences (1973) made a formal statement on "The Relationship of Nutrition to Brain Development and Behavior." These types of evidence were the impetus for including health diagnosis and feeding programs in Head Start and similar programs. Many justify the continuation of such preschool programs on the basis of this evidence even when the programs do not demonstrate long-range cognitive improvement.

IV. EVALUATIONS OF PROGRAMS IN PRESCHOOL AND INFANCY

Despite the restrictions and limitations of the research during the past decade, some generalizations are possible. We shall first list each generalization and present some supporting evidence, then try to suggest an interpretation of the evidence to those interested in setting priorities for policies.

(a) There is evidence that IQ may be changed in preschool years.

In several projects, mainly small-scale and highly motivated research experiments, significant changes in IQ of disadvantaged populations were demonstrated. Such changes were evident both in institutional and home-based programs of intervention, as will be detailed later. The more

successful intervention designs -- both in infancy and preschool age groups -- produced a mean difference of 14 to 20 points between experimental and control groups during a one-year program. Differences of such magnitude were demonstrated not only between an experimental "fostering" group and a "no treatment" control group (Sprigle, 1974; Palmer, 1968; Weikart, et al., 1970; Karnes, et al., 1969; Gray and Klaus, 1970; Heber, et al., 1972) but also between a cognitively oriented directive approach and a "traditional" kindergarten or preschool approach (Smilansky, S., 1964; Hodges, Spicker, McCandles, 1967; Karnes, 1969; Bereiter and Engleman, 1966).

If only the initially lower IQ children (those with initial IQ of 80-90 on Stanford-Binet) in the above-mentioned studies are compared, we see even greater increases in IQ in the experimental groups after an intervention of one or two years (Smilansky, S., 1964; Karnes, Bereiter, and Engelman, 1969; Weikart, 1970). A year of fostering by S. Smilansky (1964) in Jerusalem produced an upward mean difference of 20 points, during a year of kindergarten, and a more powerful intervention by Heber, et al. (1972) in Milwaukee produced a difference of 26 points at the age of three in a program initiated at infancy.

In the less successful experimental programs, mean differences were about 10 points. Regular field-based interventions, like Head Start, generally produced changes of less than 10 points. Stearns (1971) stated that (p. 13):

> Most of the children in these samples (of Head Start studies) ranged in IQ on the Stanford-Binet Intelligence Scale from the low 80's to the low 90's. The changes in IQ (or difference in post-test scores between groups) were usually less than 10 points and were most often smaller than half of the standard deviation from the mean... Even when there were reliable statistically significant changes, they were quite modest. The superiority of the Head Start children resulted from their knowing only a few more items in comparison with the non-Head Start group. The practical significance of such gains is difficult to determine.

As one illustration, Stearns presents evidence from Beller (1968) with a group of disadvantaged 4-year-old black children in a year-long program in Philadelphia. These "children's mean scores on the Stanford-Binet were about 90 before and 95 after the preschool experience, while the control groups did not change." Stearns summarized (p. 16): "prekindergarten and

kindergarten classes conducted as part of school systems' compensatory education programs seem to have produced about the same order of measured changes in general intellectual ability as Head Start."

There are also examples of highly sophisticated experimental programs, with a very high ratio of per pupil investment in professional manpower and equipment, that produced less than 10 points of IQ improvement; we shall discuss later the possible explanations for both the significant immediate acceleration and the minimal changes.

Here we may summarize by saying that experimental, small-scale, powerful interventions, which were adapted to certain disadvantaged populations' potentiality for change, produced immediate acceleration in IQ -- ranging about 15-20 points. In large-scale public systems (like Head Start or traditional preschools, either in the U.S. or Israel), the range of change was only 5-10 IQ points.

(b) Generally, children who originally score lower in IQ demonstrate more change.

One clear demonstration of this phenomenon was S. Smilansky's first kindergarten experiment (1964, p.27). "Those whose initial score on Stanford-Binet IQ was 79 and less averaged a rise of 29 points when they experienced the "directive cognitive" approach and 18 points when in an "accelerating-enriching" curriculum. When initial IQ was 90-99, the average rises were 17 and 14; and those with 110-119, only 10.9 points in the directive approach and a decline of 3 points in the accelerating-enriching control group.

Three explanations of this phenomenon are generally given by experts. First, there is a statistical artifact called "regression toward the mean" in repeated testing. Campbell and Erlbacher say: "for each class of pre-test scores, the corresponding mean post-test score lies close to the overall population mean, post-test values being thereby lower in the case of high pretest values and higher in the case of lower pretest values." 1/ Second, it is possible that those originally scoring lower come from more deprived home environments and perform much below their potentialities, and that an appropriate "nourishing" program accelerates their progress toward a higher "threshold" of performance. Also, it is possible that the available programs are geared to the children with lower initial ability and do not produce the necessary challenge for the children initially with a higher level of competence.

1/ "How regression artifacts in quasi-experimental evaluation can mistakenly make compensatory education look harmful," in The Disadvantaged Child, Vol. 3, 1970, pp. 185-211.

The last hypothesis prompted S. Smilansky in Jerusalem, Weikart et al. in Ypsilanti, and Deutsch et al. in New York to develop special programs for the more gifted among disadvantaged preschoolers. Because these attempts also did not produce significant results, the first two explanations are probably more likely for the majority of cases. Other results from more differentiated fostering experiments might affect our present summary.

Herzog (1974) labeled what may seem to be a contradiction with the slogan "double deprivation: the less they have, the less they learn." Herzog, using a traditional middle-class program (although very intensive and rich) found that the children who came from the higher socio-economic classes and resembled the middle socio-economic class were the ones who benefited most. But a partial explanation of her results may be that the disadvantaged children had to adapt to a traditional middle-class social climate in her program.

(c) <u>For most students in the successful experimental projects, the gain in IQ is maintained as long as intervention continues, but in general, only up to the end of the second grade.</u>

In the projects discussed (and in other similar projects), the experimental group maintained its gains for two or more years, either with continued fostering support by the researchers, or through entry into the public schools. But there are also examples of experimental groups that after termination of intervention, or a year later, experienced regression in IQ scores. In another context we shall discuss possible interpretations of these results.

(d) <u>According to longitudinal evaluations, with few exceptions, the control group gradually made up the gains shown by the experimental group. Usually, the control group closed half the gap (toward the experimental group) in the first grade, and eliminated any significant difference toward the end of the second grade.</u>

The longitudinal data of S. Smilansky (1964) in Jerusalem and Hodges et al. in Indiana (1967) illustrate the typical pattern. Although the cultural groups, the sampled populations, and the programs of fostering were very different, the patterns of progress for the experimental and control groups were similar. In both settings, the mean change in IQ for the experimental groups accelerated in preschool. Then during the first grade, about half of the gap was closed by the steady progress of the control groups, and toward the end of the second grade the differences were not significant. In some experiments, small differences were still evident a year or two later (up to the third grade in the study of Weikart and up to the fourth grade only in one study by Gray).

This general picture appeared even where the experimenters continued their special intervention with a follow-through program in the primary grades (see S. Smilansky, Deutsch, Weikart, and Gray). In some cases, the gap between the experimental and control groups closed because of regression in the experimental group's IQ.

Because these results have been replicated with different age groups using the same experimental approach and in other very different preschool experiments, the concept of "acceleration" of IQ level seems a proper interpretation of the contribution of the successful experiments. This is in contrast to an assumption that preschool fostering may produce a "transformation" in the pattern of thinking and learning, as measured by tests used for these age groups.

(e) In general, prolonging preschool special fostering for more than one year does not produce additional gains for the experimental groups.

In the experiments of S. Smilansky (1964), Deutsch et al. (1962-1969), Gray and Klaus (1962-1968), Hodges et al. (1967), etc., the significant change occurred in the first year. Continuation of fostering efforts for one or more years, or replication with an earlier start and a longer span program, did not produce additional benefits, when the criterion is upgrading IQ. In the early Perry preschool evaluation (Weikart, 1967) most of the groups even demonstrated an IQ regression in the second year. Even a very intensive and high powered fostering program that continued for five years (in preschool and primary grades) did not produce more significant differences -- with low level disadvantaged groups -- than did a one-year initial input (see Deutsch et al (1974) for an extreme demonstration from a high quality fostering program).

Exceptions are reports by Bereiter and Engelman (1966) and Van de Riet et al. (1970) that show a cumulative improvement in the first year of school fostering added to a kindergarten year, or a nursery year added to a kindergarten year. In Head Start, the Westinghouse evaluation (Cicirelli et al., 1969) showed a limited positive increase in a one-year program, but no significant change during a summer program, while a parallel evaluation by Datta (1969) did not show a better IQ growth in a whole year than in a summer program.

From reading the different reports and observing different programs, we assume that the conflicting evidence may be explained more by the nature of the programs under consideration (management, curriculum, population) and the design of evaluation than by the time factor. It seems that there is a threshold variable concept. By that we mean that a type of intervention is able to accelerate an intellectual growth process through its mediating specific learning pattern variables. For most children the minimum threshold is approximately a school year input that provides the mediation, while for others two years may be needed.

These generalizations relate to IQ change. For skill development and knowledge acquisition, additional time may be an important or even a crucial variable (for illustration see studies of IEA International Evaluation of Achievement, 1967-73, Levy and Chen (1974) on school achievement in Israel, and Law (1974) on school achievement in California).

(f) The precise chronological age at which preschool intervention is introduced does not seem to produce significant differences in the potential for IQ change.

In the experiments of Weikart et al, S. Smilansky, Deutsch et al., Karnes, Gray and Klaus, etc., preschool intervention was introduced at ages of three, four, or five. For some groups the term of the intervention was only one year, while for others it was two or three years. In terms of IQ, the age of entry into preschool did not produce significant differences. This generalization seems to be true for both the immediate change at the end of the program and the long-range effect.

For this point the experiment by Hodges, McCandless and Spicker (1967) in Indiana made a special contribution. In certain regions of the State preschools and kindergarten classrooms were not available. So in addition to comparing their experimental "diagnostically based" curriculum with a "traditional" curriculum, they were also able to compare with a group entering directly from home (without preschool) into the first grade. The table of their results demonstrates clearly that those who did not have the benefit of preschool and kindergarten entered first grade with a lower IQ (relative to both the experimental and the traditional preschool groups), but were catching up during the first grade and closed the gap, produced by the "diagnostically based" curriculum intervention, toward the end of the second grade.

Contributing additional support to this point are the infant experiments -- both home-based and institution-based. When the first wave of preschool and kindergarten experiments showed less long-range impact than expected, one proposition by many researchers was that preschool age is too late. Out of this feeling -- supported by different theoretical assumptions -- emerged a wave of infant and toddler fostering programs. As in preschools and kindergartens, these programs were developed in different research and service centers, by different researchers, using different assumptions and developing different programs. As will be described later, some of these intervention programs were home-based, some center-based, and some integrated home tutoring with center demonstrations and group discussions. The more successful infant projects obtained results very similar to those in preschools and kindergartens. For example, Palmer (1968), Schaefer (1971), Karnes et al. (1970) working with two-year-olds (but using different methods

and working in different geographic areas) produced about 14-16 points of IQ change. 1/

Also, the evidence from a large-scale international comparative study of mathematics achievement (Husen et al., 1967) supports the generalization about the limited relevance of the age of entry to schooling and the number of years in school to impact school achievement. In this study, results on mathematics tests at age 13 have no positive correlation with the fact that in Israel and England compulsory education begins at the age of five, in Germany and Japan at six, and in Sweden (like in Russia) at seven.

This suggests that if the concept of plasticity is interpreted as the capacity to significantly change IQ, then at least the first 7-8 years of life can be considered an appropriate period for fostering (preventive, promotive, and rehabilitative), and no one age proves to be a more "crucial" or "sensitive" or "critical" period. While the assumptions of sensitive period and plasticity have some support in the available studies, the concept of critical period, with irreversible effect, borrowed from animal experiments by Lorenz, Harlow, etc. does not have evidence to support it.

(g) There is evidence that a comprehensive, longitudinal, sophisticated, and expensive fostering program can produce sustained results.

For this generalization, we have evidence from two very different sources. First, a small-scale, longitudinal study by Heber et al. (1972) in Wisconsin of a sample of black mothers (with WAIS IQs of less than 75, from a socially depressed area) and their infants focused on educational and vocational rehabilitation of the mother, her training for child-rearing, and intellectual fostering of her infant in the center -- from the third month of life up to school entrance. They say (p. 105):

> At 36 months, there is a 30 point difference in mean IQ performance (between experimental and control groups); at 48 months there is a 31 point difference; and at 60 months, there is a 26 point difference between the groups. At 66 months ... an IQ difference of 30 points. The present data, in all areas of performance measured, clearly indicate a marked superiority. However, interpretation of and generalizations

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1/ Of course one should be aware that at different chronological ages the IQ (intelligence quotient) or DQ (developmental quotient used in infancy tests) measure different capabilities -- during infancy the sensory-motor items predominate while in preschool and kindergarten language plays the major role.

> based upon present data must be tempered by the recognition of the test sophistication which has obviously been acquired, and by knowledge of previous enrichment studies where treatment gains (particularly in tested IQs) have not tended to be maintained over long post-treatment periods.

Their follow-up study in school should be reported before a final judgement is made.

The second source is an M. Smilansky et al. (1968, 1977) study of intellectual development of kibbutz-born children. Children born in a kibbutz of parents of Middle-Eastern and North-African backgrounds who had elementary education or less scored, at middle grades of primary school and early adolescence, a mean Wechsler verbal IQ of 109; the mean IQ for children of similar backgrounds living in urban settings in Israel was around 95. The kibbutz is a unique demonstration of success due to comprehensive, intensive, and long-range fostering from infancy, although even there a gap according to parental education of children is evident from our data. Such results suggest that intervention that focuses on the family and school environment in a mutually supportive, long-term fashion may promote long-range intellectual development.

(h) <u>"Traditional" preschools produce very limited change in IQ, although they may have some other positive contribution.</u>

There is a great deal of evidence for this point from many of the studies already discussed. For example, Stearns (1971, p. 20), summarizing evidence from different evaluations, said: "The general finding of these studies was that children in the experimental groups got higher post-test IQ scores than traditional nursery school groups and the traditional groups got higher scores than children remaining at home." And more clearly, Di Lorenzo (p.1-2, 1969), after reporting on the acceleration in IQ of the experimental group, added "...these results were achieved only by cognitively oriented programs and not by nursery or early childhood oriented programs."

At the same time, how the impacts of various cognitively oriented programs differ is a very complex issue. As only a brief illustration, Weikart (1969) conducted comparative experiments with three alternative curricula. He says that in three repeated trials all groups showed similar post-test gains. At the same time, Karnes (1969) attempted to define structures of programs and found a hierarchy of results for the various programs -- her "ameliorative" at the top, then "direct verbal," then "traditional," then Montessori, and last, the "community-integrated." Again, these were immediate impact results; control groups in other experiments (Weikart, et al. (1969), Hodges, et al. (1967), S. Smilansky (1964), Klaus and Gray (1968), etc.) gradually were catching up during the primary grades.

A statement by Sigel, Director of Educational Testing Child Care Research Center (ETS Developments, Vol. XXII, No. 3, Summer 1975), expresses the traditional point of view of "progressive" education (p. 5):

> The purpose of the nursery school is not acceleration or to push children in cognitive areas. Rather, it provides enrichment of the "givens" -- the traits the children already have -- with emphasis on permitting the children to move into directions where they can go. It is enrichment of the whole social fabrics of their lives. If acceleration does occur, it is simply a bonus -- the result of enriched experience.

It is clear from the available evidence of research in the technologically and economically advanced countries that one cannot expect a transformation in cognitive capacity from regular public preschool education -- the effect of "traditional" preschool in developing countries is even more questionable. The more successful experimental programs used highly educated teachers and one or more aides for about 15 students. "Progressive" nurseries of the type Sigel advocates have similar ratios and in the kibbutz the ratio of adults per child is even higher. The financial resources and quality of personnel required for such programs in public education are not available even in the United States (where there is today an over-supply of professional teachers). When we ask ourselves about special priority to preschool intervention in developing countries, the available evidence seems to suggest a negative reply.

(i) The trends in IQ changes as described seem to be similar for different ethnic groups and geographic localities.

What may be considered a limiting factor in our summary of evidence is that most of the experiments discussed were in the U.S. and some were in Israel. The experiments should be replicated in other countries; nevertheless, there is evidence for the assumption that the data have implications for other nations. The Israeli experiments included large numbers of immigrants who originated from Yemen, Iraq, Iran, Turkey, Libya, and Morocco. No significant difference was found in the initial level of IQ (when socio-economic status and education of parents was held constant) and in the patterns of acceleration and stability. In the U.S. the Hodges et al. (1967) study of white lower class children from Indiana, the Deutsch et al. (1974) studies of black children in Harlem, New York; the Weikart et al. (1970) studies of black children in Ypsilanti, Michigan; and the Klaus and Gray (1968) studies in the black South showed generally similar results -- both among the American groups and in comparison to the Israeli groups. Replication of S, Smilansky's Israeli experiments in cognitive fostering through socio-dramatic play, drawing, and clay (Mooney and Smilansky, S., 1973) with black and Appalachian white preschool and kindergarten children also suggest that there is more similarity in the problems of cognitive deficiency and cognitive fostering than may have been assumed. The fact that through the use of similar tests,

like the Stanford-Binet, very similar trends in the results have been achieved in very different settings supports a proposition that a least in "Western" type, technologically advanced, urbanized societies, the generalizations we specified can be accepted as valid -- at least, until further replications in other cultural settings become available, or until experiments with different approaches demonstrate the limitations of the previous experiments.

(j) Parental involvement in early childhood education program has produced significant results.

Parallel to programs of institutional fostering of young children (in infant centers, day-care centers, preschools, and kindergartens), a whole range of parental involvement experiments was developed, mainly during the past decade of compensatory education. These programs can be classified according to different dimensions. We shall first discuss classification according to base of operation.

In home-based, parent-oriented programs, a mother is instructed in her home to improve her competence in child-rearing. Some programs are comprehensive, including self-improvement, family life, and home economics, in addition to child development; other programs limit their scope, concentrating on cognitive stimulation. Most programs focus on one child, of a specific age, in each family. Different media are used to facilitate improvement, for example, demonstrations to the mother on how to enrich her verbal interaction with her child and toy demonstrations.

In center-based demonstration of child-rearing, the focus remains on the mother-child interaction, but the place of the mother's education is in a center, with lectures and demonstrations of improved care practices, with actual involvement of the mother in the child care role in the center, or with group discussions, etc.

For programs combining home and center activity, the reasoning may be economic efficiency or social-psychological and pedagogical reasoning (like value of reference group and group discussion). In some cases, it is a child-education, institutionally based program with additional involvement of parents; in others, the center is used solely for the improvement of performance in the parental role.

Another dimension is age. Nearly all programs focus on a specific age group. Generally it is infant care (0-2), toddler care (2-3), preschool (3-5), kindergarten (5), or primary grades of the elementary school. Usually there are theortical assumptions about the crucial role of that age for child development or mother competency or both; in other cases, the age group selected is a by-product of the role the institution (an infant center or preschool, etc.).

Parental involvement programs can also be classified by goals of the initiating agency. A women's organization, or a research institute, may aim at increasing self-esteem and the coping capacity of women from

disadvantaged families. A preschool may be attempting to increase its program impact on child development. A community center may be interested in serving the needs of its area population. Or a mother-child health clinic, which originally was involved in standard mother guidance and infant care with physical check-ups, nutritional advice, etc., may recognize the need for a program in cognitive fostering of infants. Some programs have differentiated behavior-oriented development goals and task specifications, while others have only general orientations in the physical, cognitive, and affective domains.

One could also discuss programs according to other dimensions, for example, length of time in program and length of engagement in a week, the staff employed (professional, para-professional -- paid or volunteer), the role of the staff (home contact, education, demonstration, facilitation), program management (research center, health center, teacher of preschool or school, women's organiztion, parent cooperative responsibility, etc.). It is beyond the scope of this memorandum to discuss the many implications of these variables, although some will be mentioned in the presentation of the evidence which follows.

Because of space limitation we shall summarize the results of parental involvement programs that seem most relevant to our discussion. As for the preschool programs the main evidence is from programs that were evaluated longitudinally; we will focus on programs that we assume other experts will accept as appropriate (considering the limitations discussed in our introduction).

(i) Parent involvement programs produced results as good as those of preschool, and in some ways, the results were even better. The programs that were initiated by Gray and Klaus (1970, 1974), Levenstein (1976), I. Gordon (1969), E. Gordon (1971), Weikart et al. (1970), Karnes et al. (1970), Ortar (1973), Lombard (1973), and others demonstrated the possibility of involving mothers in a change process -- producing as great an acceleration in their child's IQ as that produced in an institutional program (infant center or preschool) and in some cases, maintaining the gain for a longer period after termination of intervention. Gray and Klaus (see 1968, 1972, 1974) initiated their experiment in 1962 which was a 10-week summer program of preschool and home visits. The mean rise in IQ was 15 points and although later there was a decline, the superior status (as compared with the control group) was maintained for four years after the intervention. As with preschool programs, the control group closed the gap during the first primary school years. Levenstein (1976) began her home toy and book demonstration project in 1965. She aimed to promote mother-toddler verbal interaction and cognitively oriented growth -- during two years (ages 2-3). In

five successive groups, IQ was raised 15 points and the difference over the control group was maintained 3-4 years after termination. 1/

When we say that parent-oriented programs achieved even better results than preschool programs, we refer not only to longer-term relative superiority of IQ through a shorter-term intervention. Also important is the evidence of a positive impact on mothers -- many raised their self-esteem, sought further education, or were employed as semi-professional workers in the same project (Levenstein, "Toy Demonstrators" and Gordon, I. J., "Follow Through Program Educators").

One possible explanation for the longer impact of these programs is the continued mother self-involvement after program termination. Also there is evidence from Gray (1968), and two other projects, on a vertical diffusion to younger siblings and possibly even horizontal diffusion to neighbors (some belonging to the control group and thus contaminating the results).

The hypothesis about the causes of this relatively powerful impact on mothers' education are: first, that these projects create improved cognitively oriented, as well as affectively based, mother-child communication; second, that the mother is building new awareness of self as educator and of the child's cognitive needs from infancy; and finally, that the change in the child's capabilities and expectations has immediate impact on the mother's reaction in the dyadic interaction in general, and dialogue pattern in particular.

At the same time, we should repeat that the main limiting factor in preschool child-oriented education is evident also in mother-oriented education. For example, Gray (1974) started in 1964 with a group of black children who had a mean IQ of 81 and raised IQ to 96 two years later, and in a 1969 follow-up year, their mean IQ was 92. The control group started at 85, reached 90, and in 1966 was 87. The 5-point difference was comparable to that found by M. Deutsch (1974) in the 5-year intensive preschool and "follow through" intensive investment but well below expectations.

(ii) Home-based and combined home- and center-based programs seem to produce similar results, according to S. Smilansky and Shefatiah (in Israel, 1976) who tried experimentally at first only home-based programs and later tried additional meetings in a center away from home. Their results were similar to those of Johnson et al. (1974) in a mother-child center in Texas. It seems that for economy as well as for provision of

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1/ However, her report of 1976 with a randomly chosen experimental and control group shows only a 5-point difference at termination of two-year fostering and raises questions about possible selective factors in her previous groups.

group experiences to mothers, some combination may be preferred. Of course, the final outcome depends on the composition of parents in a certain population and in some cases on the specific goals of the program.

(iii) Adding a parental involvement program to a preschool program does not increase children's cognitive development. Smilansky, S. and Shefatiah in Israel and Karnes, et al. in the U.S. explored child cognitive development through fostering both in a preschool and in the home. These studies also found evidence of a 15-point rise in the IQ of the experimental group and the "catching up" of the control group over time. While parent involvement in institutional programs may be recommended for certain social and psychological reasons, it cannot be expected to affect significantly the tempo and mode of cognitive change in the child. Also when we consider overburdened mothers with responsibility for a large family, or mothers who have to work for income and family care, there may be no justification to add additional pressure on the mother to develop cognitive abilities. Another consideration may be the evidence that under some circumstances certain mothers with large families tend to neglect other children's or their husbands' needs when involved in the one-to-one fostering program with one child. Finally the program may produce problems relating to feelings of incompetence, or pressure in actual home management for the mothers.

(iv) In parent-oriented programs, the time factor is a significant variable. There is evidence from Gordon, I. J. et al. (1975), and others who work in this area, that the time of entry (the earlier the better), the length of time with program (the longer the better), and the consistency of program (the more consistent involvement with the programs the better) combined to produce the higher IQ levels of the experimental groups and their relative gains were maintained for three years after the end of project. According to a Levenstein (1975) report, a two-year program with mothers (children's ages 2-3) produced more powerful impact than a program of shorter duration. Other evidence showed that bi-weekly, weekly, or semi-weekly home visits produce no significant differences.

(v) Para-professionals performed the expected roles as well as professionals did. Levenstein started her experiment with social workers holding master's degrees. With subsequent groups, in the same center and in many other centers, she used para-professionals who were project mothers and received the same impact on child development. Gordon states (1975, p. III-40) that in his program "it was demonstrated that low income para-professionals could indeed effect change in development of disadvantaged infants and toddlers." Lombard (1973) in Israel also used para-professionals successfully in her project, and the same result occurred in many other projects that we visited or reviewed. Of course, in all projects there is need for initial training of a professional coordinator-supervisor, initial short-term training of para-professionals, and in-service supervision of para-professionals.

The benefits of using local para-professionals are: first, that in a well-designed program, gradual diffusion beyond the specific program is more likely; second, that mothers accept more favorably facilitators coming from their own ethnic or social class group; third, that the lower salary levels and the use of volunteers keep costs relatively lower; fourth, that many mothers who persevere in the program see an option for later paid work positions; and finally, that the project budget may attract additional political backing since the funds allocated for the disadvantaged are not diverted to groups outside the target community.

(vi) Program goals and actual performance are limited to mothers. With one or two exceptions (for example, weekend parent education programs), the many programs we reviewed (and others known to experts in this field) made no serious attempts to involve fathers, adolescents who are the future parents, or grandparents. In some cases the theoretical reasoning is that the mother is the primary source of child-care and child security in early childhood, so her involvement is basic to the desired socialization of the infant and toddler. In other cases, it is added that in a large family in poverty areas, mothers are so over-burdened and even depressed (both by their overwhelming responsibilities and their low status) that they need psychological and practical support to continue to cope with their responsibilities, and to improve their role performance. Other, more practical reasoning is that in reality fathers are not available or not ready to participate.

V. CONCLUSIONS

Taken as a whole, the results of the preschool programs aimed to foster the cognitive development of children in disadvantaged families do not justify giving special priority to investment in such preschool programs. Although IQ may be raised by some preschool programs, the gains are often not significant and regardless of program are maintained only for a few years; most studies showed that the gains were evident only until the second grade. In particular, "traditional" preschools have been able to produce only very limited gains in IQ. Long-term, intensive, and expensive programs may produce sustained gains, but when financial resources are constrained such programs are not feasible.

Preschool programs that involve parents show promise. Some have produced IQ gains as large as those produced in child-centered preschool programs. Besides improving cognitive ability, there have been benefits to mothers involved in the programs -- many raised their self-esteem, sought further education, or became employed through the projects. Because para-professionals and volunteers have been successful in carrying out the goals of some programs, the costs of the parental involvement program are potentially lower than for other preschool programs.

However, adding a parental involvement program to a child-centered preschool program does not produce greater gains in children's IQs than would an experimental preschool alone or a parent-oriented program alone. Since parent-oriented programs have important positive side effects in addition to promoting cognitive development, it is recommended that programs with potential to building the family be given consideration as a direction for future program development.

APPENDIX

WHY PRIORITY TO ADOLESCENCE?

I. Issues of Adolescence

(a) The concept "adolescence" is relatively new. The term was created to describe what is mainly a by-product of the forces of modernization. The modernization process is different in different societies, but we can describe it in very broad sociological terms. In traditional agrarian societies children were socialized in the institution of the extended family and the socio-cultural system of the community. Through "natural" involvement and identification with culturally prescribed sex-roles they generally adapted very early to home, work, and community expectations; and certain initiation rites and forced realities facilitated the transformation from childhood into young adulthood. First came adult-type work responsibilities and later privileges and social status prescribed by sex role and age role. Industrialism and urbanism gradually brought fragmentation. These developments also forced mobility, fragmentation of the extended family and the community, and separation into isolated nuclear families, as well as age groups. The scientific revolution, industrialism, urbanism, and secularism converged, opening many new options, but also contributing to the emergence of large-scale problems and crises. It affected, in a unique way, roles and status -- according to sex and age groups -- of adolescents, women, and the elderly.

In psychological terms, Stanley Hall "discovered" certain manifestations of these age cohorts in America in the 1890's; and in his book Adolescence: Its psychology and its relation to physiology, anthropology, sociology, sex, crime, religion and education created the universal label "adolescence" (1904). In parallel, Sigmund Freud in his "Three Essays in the Theory of Sexuality" (1905) provided the original psycho-analytical interpretation on the transformation of puberty, which served as a foundation

for many later in-depth pioneering studies, by anthropologists and psychologists, of adolescent phenomena. Margaret Mead (1928), and later other anthropologists and sociologists, questioned the universality of adolescent manifestations using evidence from preliterate tribes, and many psychologists and other behavior scientists questioned certain phenomena and interpretations. But for our discussion, it is more important that in all technologically advanced societies, and gradually also in developing countries, adolescence is a reality and a problem that must be confronted by all those involved — adolescents, parents, and social institutions.

(b) Adolescence is a marginal and problematic position. In sociological perspective, the cohorts in "adolescence" are persons grouped by the modernization process into age-stratified, marginal, prolonged dependency with relatively little power or status. Because maturity -- physical, cognitive, and social -- is accelerated, they are not children; but because societies do not need them for socio-economic and defense survival and consider them immature for adult roles and status, protected environments for custodial and socialization purposes are created for them. This protection of adolescents is expressed by compulsory legal arrangements (compulsory education laws, work permit laws, age for marriage and alcoholic drinking laws, dress and hair-style codes, and night curfew regulations) and the creation of segregated custodial and socialization reservations called secondary schools and adult-dominated youth organizations.

We are considering adolescence a by-product of modernization. Many forces affected this evolutionary social process. Mechanization of production and services separated work-roles and work-place from home, and role and status became defined according to task assignments. This made child and youth work unnecessary, and even competitive, with adult work. In parallel, scientific, technological, and social developments increased the pressure for prolonged learning and continued schooling. Family planning limited the number of children and improved economic conditions, while urbanism and the growth of the service sector facilitated middle-class value orientation and democratization of prolonged education in school.

The post-World War II pressure toward secondary democratization of education facilitated prolonged schooling in comprehensive institutions and the "baby boom" contributed crash programs for growth in size of schools. So, large numbers of students in large institutions were socialized by mass-produced teachers and curriculum. The need for efficient schooling for larger age groups created the age-grade classroom stratification (Aries, 1962). Children thus became isolated from family and community involvement and were expected to develop the necessary qualities of psycho-social maturity during prolonged socialization in a fragmented and competitive age-graded classroom and institution.

At the same time, the scientific revolution, technological developments, and secularism contributed to earlier maturation of adolescents (Tanner, 1962) and their earlier escape from innocence (Bachman, 1970, 1971; Yankelovich, 1973). They cannot be treated as innocent adaptive children, but they are also not considered equal to adults and accepted to share in the co-determination of their immediate needs and their future.

(c) <u>There is ambiguity of feelings toward adolescents</u>. It is important to recognize that an ambiguous psychological feeling and social reaction by adults toward the termination of childhood have been evident throughout history, as demonstrated by anthropological studies of primitive societies. In a tribal homogeneous culture, evolving rules and mores were inherited and accepted by parents and children. Both child and mother had to face abrupt transformation of attachment -- and adaptation to new roles and status -- facilitated mainly through different forms of "rites de passage".

The torture of separation-transformation rites (Thurnwald, 1961; Landman, 1927; Byrk, 1928; Whiting, 1941; Mayer, 1953; Muensterberger, 1956; Nash, 1958) were an expression of hostility by the old toward the young. The rites aimed to force the severence of son-mother ties, arouse sexual desire but facilitate sexual role adjustment, ridicule the non-readiness for adult sex-role whether in intercourse or in work and thereby foster it, pressure for conformity to community social order, and prepare the young for future adult hardships, according to sex role and status.

Today adolescence is recognized as a need for adaptation, through a gradual, prolonged, socialization process, biologically based but culturally oriented, with the transition from childhood to adulthood taking 6-8 years.

Some of the same basic social-psychological ambiguities exist, but in context of a transition to a new stage and pattern of interrelations. Prolonged adolescent dependency is a very recent social phenomenon. It emerged and accelerated in the U.S. through the depression of the 30's and the "great society" of the 60's. In Europe it was mainly influenced by the successive crises of two world wars and the emerging welfare-state during the last two decades. Such accelerated social change, the fragmentation of the

extended family and the community, and the disruption of the cultural norms explains some of the inability of the family, the school, and the social order to confront the emerging adolescent and parent needs. In the present phase of modernization, mass communication and education create guilt feelings in parents, teachers, and children about what they have done and what they could have been doing and experiencing. This, of course, increases the reason for and the experience of ambiguity.

In traditional societies there was less ambiguity because of innocence. Knowledge about alternative options was not available in the geo-political "closed systems"; awareness of potential danger to mental, or even physical, health could not be considered; and even when the rites were in fact crises-prone, there was the deferred gratification of becoming a dominating adult in a patriarchal or matrilineal traditional system.

Another aspect of the social phenomena expressing the ambiguity of parent-adolescent relations is expressed in the labeling of the current period as the "adolescent" or "youth" age. The "youth culture" is dominant as is evident from mass communication and personal orientation and behavior in grooming, dress, music, recreation, etc. In a traditional society, adults enjoyed their mature age status and played their roles accordingly. Children sought to model adults. They were role-playing as adults and looking forward to adult roles. Today, in the instant-cultures of what some call post-industrial societies, parents feel culturally deprived because they are not part of a youth culture. The mass-communication media feature adolescent playful models. Parents imitate their daughters' and sons' dress and grooming--or even courting--seeing that as a mirror for keeping up with expectations to be relevant and for gaining assurance against being outmoded in a generation gap.

And at the same time, they speak against the youth culture with its "negative" manifestations, describing with nostalgia the good old days. They cannot accept their child being different than they are. This psycho-social dilemma raises the deep-seated question of ambiguity and psychological incongruence. How can someone who is not secure in his self-identity and lacking in self-esteem socialize the next generation with security of heritage?

The other side of this is that many adolescents find themselves with no support and guidance. The mass media continuously raises expectations, parents are involved in their own adjustment to the accelerated modernization process and their own actualization problem, and most schools seem to have become large dehumanized bureaucratic institutions. The choice of many adolescents is focused toward the outlet of peer systems which promise understanding, support, relevance, escape from adult pressures, social status, and maybe also the power "to be".

(d) <u>The adolescence problem is especially acute and urgent for the socially and culturally disadvantaged</u>. Either because of immigration to a very different socio-cultural ecology (from Mexico or Puerto Rico to the U.S. or from Yemen and Morocco to Israel) (from rural agrarian tradition to urban pressure, from fundamentalist affective religious dependence to secular independence) or a fragmentation of familial and community structures and norms for those born in an urban setting, the disadvantaged are victims of the slum area configuration of forces. For most of them, the family has lost (or did not develop) the necessary capability for relevant support, the school is not adapted to their needs, work options are limited or unavailable, publicity for affluent consumerism raises high expectations, the mass media suggests

modeling in dissonance with available resources, and the neighborhood ecology strengthens these negative forces.

The problem for the disadvantaged adolescent could be described as a "polluted" social environment, in which a feeling of powerlessness dominates both parents and adolescents. And unless support becomes available to facilitate a powerful counterbalance intervention -- through cooperation of political and educational facilitators with those concerned -- frustration and waywardness will prevail for the majority. A minority will escape to other ecological settings. But the escape of the more resourceful has an additional negative impact on the disadvantaged area because it promotes a negative self-image among those left behind, creates a "negative selection" process, and allows a domination of the local scenery by socially marginal elements.

(e) Community ecology and socialization of the young is dependent on adolescent behavior. Especially in culturally disadvantaged communities, adolescents and youth serve as models to younger age cohorts, to their younger siblings in particular.

In a process of accelerated modernization, parents lose, to a large degree, their status and power as models for identification. Therefore, younger children tend to follow value-orientations and behavioral manifestations of adolescents; adolescents tend to model young adults. Thus, the effect of early childhood and primary education -- even when the programs are successful in terms of direct and immediate measured results -- may be limited. We should beware of producing diminishing returns by a "disequilibrium power model". If the dominant group in a community cultural ecology is adolescents

and young adults and if they are frustrated and inadaptive, they will not serve as effective models for younger children and, therefore, the impact of early socialization schooling programs may be eroded.

II. Adolescent Characteristics as a Basis for Fostering

(a) Adolescence is a position that may impact three generations. First, adolescents are children of the past -- involved in the orientation and coping of their family of origin. They are forming a past imagery, present identity, and competence to share in the daily reality of their family. At the same time, they are already experimenting to form their future capabilities and options. Through their coupling patterns they are building the second generation family, which in its physical and mental health, cognitive competence, moral development, political inclinations, socio-economic and affective role performance, etc., will affect the quality of life for a third generation. To those who believe in a primary prevention approach -- for assurance of more appropriate development of coupling, sex role identity, mental health, social competence, achievement motivation, future mother health, family planning, infant well-being and development, etc. — a priority investment in adolescents is economically a very efficient approach and socially a promising investment.

So, we suggest a priority to anticipatory socialization of adolescents and youth -- for confrontation with value orientations, commitment to chosen goals, and responsibility for self-development, coping, family building, and community development. The confrontation with the meaning of their

heritage, the options of the present and the emerging stage of modernization, and a responsible interface with problems of developing futures -- these are the focus for a learning process in adolescent education. Propositions about effective environments for learning will be presented in the last section of this paper.

(b) <u>There is evidence that the impact of early childhood and negative primary school experience may be reversed</u>. In the paper on pre-school, we discussed some of the propositions and supporting evidence that family background and early childhood experiences impair personality development. There is no question that a preventive and promotive approach should be preferred to later rehabilitation, but the question is how early and what are the appropriate designs for research and development. We claim that powerful intervention designs for during adolescence promise a preventive and promotive head start for tomorrow's family building, and that family-oriented support provides a promise of both economic efficiency and social equity. In parallel to the preferred preventive option, adolescence should be considered in terms of rehabilitation. Despite the ambiguity of feelings about adolescence by the public and the escape from confrontation by policy-makers and high quality researchers and educators, there is an accumulation of evidence that a process of reversibility should be considered, that there is no reason to give up on the option of rehabilitation. Powerful intervention designs during adolescence promise both an immediate and long-range reward for certain groups of the population.

The assumption that early childhood influences are imprinted on personality development and irreversible was accepted by psychologists from five sources: first, Freudian teaching based on and extended from interpretation of problem cases in treatment (Freud, S., 1963; Freud, A., 1965); second, many studies of mother-child separation and institutional severe deprivation (Spitz, 1945; Goldfarb, 1945; Bowlby, 1952; Dennis, W. and Dennis, M.G., 1941); third, the extension of animal laboratory experiments on imprinting (Lorenz, K.L., 1971, 1972; Hess, E.H., 1964) into human development, although no such direct evidence was available from child psychology; fourth, longitudinal studies that produced the evidence of correlation between home background in early childhood and later development of IQ (Bloom, B.S., 1964, and others); and last, the evidence of a growing gap in school achievement expressed by the term "cumulative deficit" (see illustrated bibliography in Bloom, et al., 1964). But, human personality is a very complex phenomenon and contradictory evidence has surfaced since World War II.

In World War II studies and later in reports from the California Institute on adult personality research (McKinnon, 1960), adults whose early childhood experiences were very negative were shown to cope successfully. The analysis of data from longitudinal studies by Bayley (1949), Kagan and Moss (1962), and McFarlane (1964) shows variability and low correlations between early childhood manifestations and adult performance in different areas of personality development. This may be interpreted as demonstrating the reversibility of impact for some persons. Follow-up studies of institutional deprivation in humans also show reversibility of early impact (Dennis, 1973; Tizzard and Rees, 1974). Kagan and Klein (1973) reported on Guatemalan children's recovery at adolescence from the impact of a very restrictive and

depriving environment in infancy, although no special fostering program was available.

Suomi and Harlow (1972) reported that in the same way that they were able to demonstrate on monkeys the affective deprivation impact of separation from mother, they also were able to produce the social rehabilitation of isolate-reared monkeys. Later laboratory research has also demonstrated that even imprinting in nonhumans can be reversed, as reported by Hess (1972) and others. And reports from special fostering programs in adolescence have shown not only immediate influence but in some cases long-range impact.

To illustrate the results of adolescent fostering programs, we shall discuss direct intervention attempts in Israel, since American studies are probably easily available to those interested. Smilansky, M. et al. (1966) established experimental afternoon and summer Enrichment Centers (duration of program 3 years, ages 12-14) in Jerusalem and Tel-Aviv. The follow-up report (1966, 1971) indicates that in comparison with a control group, in both cities the experimental center groups demonstrated significant gains on Wisc IQ, on scholastic retest batteries of the municipal psychological services, on independent evaluation, and on the national scholastic survey. Also, although support was terminated (according to design) at the end of the 8th grade, the experimental groups (coming from 16 different disadvantaged neighborhoods) demonstrated their continued superiority up to completion of secondary school education (12th grade).

A parallel boarding home fostering program (Smilansky, M. and Nevo, 1966, 1976) for the more gifted among the disadvantaged (mean Wisc IQ 100) produced systematically promising results. The program fostered adolescents

from the ages of 14 to 17, during high school. The 10-year follow-up showed a significant superiority for the experimental groups in the rate of passing matriculation examinations (in comparison with both the same ability and background group and their secondary school classmates). And what is more important, although the supportive program was terminated (according to design) at the end of high school, and graduates went to serve for three years in the army, they showed twice as many university graduates at the time of follow-up (six years after termination of fostering) than the control group. Because of the success of the Boarding Home Program, the Ministry of Education has gradually enlarged it and today more than 3,500 youth are participating in 25 centers.

Frankenstein (1972) demonstrated with a similar ability and background group the possibility of rehabilitating thought patterns, through systematic help to teachers to perform such roles. He achieved significant holding power and success in national matriculation examinations although the project was only a day program and not a total environment like a boarding home.

Special compensatory rehabilitation projects for the lower ability groups among the disadvantaged are in operation, one in Jerusalem under the leadership of Feurstein (1972), and a second in Tel-Aviv in the NETA Secondary School Fostering Project (Smilansky, M. et al, 1977). Feurstein is focusing on systematic rehabilitation of cognitive abilities through specially constructed dynamic diagnosis and rehabilitation exercises, and there is evidence of immediate positive impact. A longer range evaluation has been organized and we await the results. The NETA project is a more comprehensive curriculum adaptation approach. Evaluation of some specific units is available but a

comprehensive follow-up is planned. Both approaches are used now by the Ministry of Education with adolescents in "depressed" areas and it plans a follow-up evaluation.

Finally, cross-sectional achievement testing during the primary grades and a follow-up during early adolescence by Levy and Chen (1974, 1976), like similar evidence by Law (1974) in California, also suggest the possibility of arresting a "cumulative deficit" process through appropriate investment.

The different studies on reversibility deserve a more detailed evaluation, and some of the observations and experiments should be replicated using a scientifically more careful and sophisticated design. But with all possible reservations we should be aware of a promise in their basic proposition, that should be transformed into a new commitment to reforming secondary education.

(c) Need assessment: Adolescent characteristics provide the foundation for fostering programs. A promising fostering program should be based on need assessment. But the question is what criteria are guiding us, as a value orientation, in searching for needs. For example, when we initiated the NETA Secondary School Fostering Program for the low ability adolescent we listed his present characteristics to guide curriculum unit developers to start from where these persons are -- in their knowledge, skills, and motivations. And we attempted to define the normative expectations -- of the school and society -- for psycho-socially mature adult behavior in our socio-cultural system. But, in conceptualizing a reformation of adolescent education toward the future, we chose a different approach -- a more dynamic one. We asked not "where is our population?", but "where can it be?", according to need

assessment and our assumptions about their growth and change potentiality in the context of the local and national configuration of forces. There were several reasons for this second, dynamic approach. First, we are dealing in this report with conceptual futurism for building criteria of goal and task orientation in developing educational programs for families and their children. Also, many of the present approaches to adolescent education are based on static observations and interpretations. They perceive adolescents as they are, in the context of present secondary schools, and may have no faith in our capacity to effect change. Since we are aware how problematic it is to facilitate long-range change in human beings and in social institutions, we should start with a consideration of a promising dynamic perspective for an effective environment and have faith in human capacity for development; and only then ask how a bridge can be built between where adolescents and their social institutions are and their potential for growth and change.

There are at least 11 psycho-social characteristics, or potential needs, of adolescents (Smilansky, M. and Sanders, 1972, 1974) that if perceived and used by developers of education systems -- in goal definition, organization, curriculum, social climate, and pattern of learning facilitation -- can serve in a powerful intervention policy. Such an approach to program development may enable adolescents to be more responsible participants, more active and creative, and more self-directive. They are listed next, and in the final section of this paper we outline propositions that may provide the foundation for adolescent socialization based on these characteristics.

We do want to repeat our reservation about the range and depth of available knowledge, especially in what is defined as the non-cognitive

domain. The limitations of research on psycho-social development beyond early childhood should be recognized when we want to answer very basic questions about relations between emotion and social development, cognition and social or emotional development, etc. The limitations are even more noticeable when we are interested in developmental changes with age, and very little is known about the impact of differential socialization patterns on the development of behavioral traits or competence. We assume that the recognition of need dimensions in certain domains will also facilitate the emergence of more relevant research.

(1) Marginality - As mentioned the adolescent is already not a child but is also not an adult who has reached competency in knowledge, skills, motivations, responsibilities, and status. And, as Mann (1965) said, he wants to be an adult in some ways, but is reluctant to give up the privileges of childhood all at once. Being at a crossroads he is in a position to change orientations, and so to change roles, status, etc. His physical, emotional and social capabilities are rapidly changing. Therefore relevant educational experiences can promote the discovery of new options, orient the adolescent toward continued consideration of desired values and behaviors, and help him to accept responsibility for choice and performance in new directions. For the disadvantaged, the limited available evidence (Amir, 1969; Feurstein, et al, 1972; Frankenstein, 1972; Smilansky, M. and Nevo, 1977; Chen, et al, 1976; Dekel, 1976) shows the impact of a changed educational environment during adolescence on motivation, school and army performance, self-esteem, and responsibility.

(2) Potential awareness - The accelerated developmental change allows an option for earlier development of awareness about self and the environment

(the configurations of his parents, the socio-cultural setting, his early experiences, expectations of the present and future, etc.). Appropriate educational programs (for initial attempts see: Alschuller and Weinstein, 1974; Newberg, 1972; Smilansky, M. and Rosenman, 1977) aim to facilitate change in self-perception and insight, as part of an attempt to foster self-identity and social development. Experiences can be provided to enable the individual to make more adequate differentiations of the phenomenal self and its relation to external reality (Snygg and Coombs, 1949). This differentiation is a foundation for the basic need of adolecents for independence from parental dominance (Yosselson, 1975). Awareness is achieved through a complex process of perception, self-insight, and self-evaluation. Perceptual differentiation is an initial psychological medium toward personal autonomy. But to achieve awareness one needs also to reach a capacity for integration of the many differentiated perceptions within his selfhood. This is the process of self-insight. The adolescent needs to be able to confront his past experiences, both real and imaginary, both those provided in the home and those influenced by his community and national cultural heritage and current events. He needs to differentiate cause and effect, basic trait and symptom, fact and interpretation, to understand a pattern and cope with it. This is already another state in awareness building -- self-evaluation. Self-evaluation -- of potentialities as well as limitations -- is a prerequisite for conscious self-acceptance, at least to a certain degree. It may bring a change in the perception of others (Cowan, 1942); the adolescent may begin to take actual responsibility for more confident self-determination, self-development, and social development. In other words, the systematically

fostered capacity for awareness, enhanced in adolescence by cognitive and moral maturity, allows autonomy and responsibility for choices relating to the future.

(3) Differentiation - Adolescence is an age of accelerated differentiations in the tempo and mode of growth and development, according to age, sex, abilities, knowledge, aptitudes, motivations, and patterns of coping. These differences are influenced by both hereditary and environmental factors. They can be perceived and realized -- by parents, teachers, and the adolescent -- as positive potentialities, if they are approached positively, legitimized, and fostered rather than denied by static evaluation of the individual against a fixed stereotype.

(4) Cognitive maturity - If we use the Inhelder and Piaget (1958) definitions of stages, adolescence is an age of transformation toward capacity for "formal operations" in cognitive development. Those helped to master their potentiality find new worlds open to them. They can cognitively master the place of man and social institutions within different dimensions of time, space, and mode of operation. Therefore, for them experience is not the only possible reality.

Fostering cognitive development is a basic priority in societies in an advanced stage of technological, urban, and secular modernism because on it is dependent a person's capacity to perceive, gain insight, and understand self, environment, and his interdependent transformations. While originally psychological assumptions focused on mental health fostering to promote capacity for cognitive development, later evaluations provide evidence of how inability to cope with cognitive expectations undermine mental health in general and emotional expression in particular (Frankenstein, 1972; Smilansky, S., 1958; Hoffman, 1975). Also, cognitive ability development is

important for social development both in terms of social conceptualization and moral decisionmaking. Different social learning theories are associated with different degrees of cognitive development.

Even those who question the universality of Piaget's timing of transformation (on the basis of tests in different socio-cultural ecologies) or his social-psychological interpretations, are not questioning the important role of cognitive development in gaining the necessary social perspective in a world of accelerated change and complexity, with interdependence among elements in the systematic configuration of forces.

(5) Search for self-identity - Adolescence is an age of feeling, social search, and commitment. We discussed some aspects of the need for self-perception, self-understanding, and self-evaluation -- through different media -- in comparison with significant others who serve as a frame of reference. But there is more involved. It is the need to develop the necessary autonomy for personhood. Although self-knowledge is an important foundation, the next step is differentiation from parental attachment and domination and development of a societal pattern of role-expectation, feeling, and reacting (which is sometimes even expressed in terms of being an object instead of a subject). Roles must be clarified. Unlike the abrupt transformation from child attachment into identity in adulthood in "primitive" societies through "rites de passage," in the complexity of modernization a prolonged option for a process of transformation is available. Erickson (1959) defined it as the "psychological moratorium". Educational programs can utilize this moratorium to help

adolescents understand their family of origin and their cultural heritage, identify the potentialities in their self and in different environments, build awareness about who they are and what they can be and want to be, and facilitate learning to take advantage of possible options. These programs may develop persons who are more secure in their identity, more active and committed, instead of passive and alienated.

(6) Social development - Empirical knowledge in this domain is very limited, although there are many hypotheses from personality theories that should be tested longitudinally through specification and replication in different ecological contexts.

To reach an appropriate level of psycho-social competence in roles in school, peer group, heterosexual intimacy, work place, family building, etc., the growing adolescent must develop interpersonal and social competence in feeling, valuing, communication, and social integration. While this was important to a certain degree in traditional society, it became a dominant need in fragmented, competitive, mobility-oriented, role-changing, and socially interdependent ecological contexts. Because of inner biological and rapid psychological changes, and the need for reorientation to new equilibrium, adolescence in our society is characterized by self-centeredness, "inward-bound" focusing. This may have positive potentiality for self-awareness and self-identity, but it may also have negative aspects, for example, in terms of being inconsiderate of the needs of others -- it is a lag in capacity for empathy, social commitment, responsibility, etc. There are different ways to differentiate and discuss areas of necessary social competence. Here we shall focus only on illustrations from some areas of communication and action that have crucial potentiality in adolescence.

The first illustration is social communication. According to Berlo (1960) it depends not only on knowledge level and verbal facility but also on the person's attitude and the expectation of the socio-cultural system. Social development should aim at what he defines as the fourth (upper) level, two-sided mutuality, where both communicators participate in role-taking and influence-making.

The philosopher Buber defined this achievement as a capacity for dialog (instead of duolog, where each person sends crossing, unrelated messages). Of course, such a level of communication assumes a capacity for what Erickson (1959, p. 82) defined as "equality of worth," even where there is no "equality of time schedules," as in the case of the father-son relation.

The second illustration is empathy, the capacity for openness, perception, insight, feeling, tolerance, sympathy, and concern for the "other" in general and to the partner in interaction (communication) in particular. Hoffman (1975) suggested that there are three stages in the development of empathy from infancy up to nine years, which are related to cognitive development stages. An extension of research, both in terms of later developmental stages and differentielly to define the impact of sex roles, social class, cultural context, impact, etc., is needed.

A third example is expressed in what is called friendship, a concept embracing the whole gamut of recognition of need and capacity for give-and-take relationships between persons. It ranges from the capacity for mutuality in any form of interdependent social relations to what is defined as "love". Some persons are unable emotionally to give help, but can take the given, and even expect it. Others don't know how to ask for support. For some, to "give" is to give on their own terms, according to their needs,

rather than on the other partner's needs. This capacity is necessary for the development of mutually satisfying social relations in any context and is crucial to modern family life, which is based on a "love" model. Thus, we see sex education for adolescents in the context of sex-role identity and anticipatory socialization toward family building. Our curriculum development work for socialization in this area aims to develop capacity for effective, mutually satisfying give-and-take social development in heterosexual relations.

Another aspect of special importance is social relations in general. It is the capacity to develop and maintain necessary and satisfying human relations, both with persons of the same sex and with members of the other sex. While some are unable even to reach minimal normative standards of communication, others reach the desired stage of response enjoyment and satisfaction, based on trust, expression, and release of feelings, through autonomy and spontaneity — almost natural interdependence. Personality research not only demonstrates individual differences in this domain but even suggests possible hereditary traits, for both the constraints and the creative capabilities that some persons demonstrate.

The fact that even common (as if equal) socialization, from birth until adulthood, in communal settlements (like the kibbutz) does not diminish the great individual differences both in the need and capacity for social intercourse demonstrates how deep-seated these traits are.

But, there is also evidence from human relations training and different forms of therapy that some degree of change is possible, whether in-depth transformation or only skill development for symptom control. What is important for our discussion is that recent initiatives to introduce direct intervention in this domain, in early and late adolescent education, suggest

both a recognition of the need and a readiness for self-development in this domain.

(7) Moral development and political commitment - We could discuss these characteristics separately since each has unique developmental fostering potentiality during adolescence (Kohlberg and Turiel, 1972; Adelson, 1971). But it was decided to associate them here because of our conviction that in a discussion of education by need assessment it is important to communicate that a democratic society needs both political commitment of the young and political action that is morally based and not just an expression of personal and group selfish interest. In both domains there is relatively limited comparative and longitudinal in-depth research on the "natural" social psychological reality and the impact of different forms of intervention (Adkins, et al, 1974; Turiel, 1975).

Since Adelson's comparative and partly longitudinal analysis (1972, based on a series of Ph.D. dissertations 1966-1970) is one of the more reliable sources, his statements are relevant for our presentation. First, he states (p. 106):

> "the years of adolescence, twelve to sixteen, are a watershed era in the emergence of political thought. Ordinarily the youngster begins adolescence incapable of complex political discourse - that is, mute on many issues, and when not mute, then simplistic, primitive, subject to fancies, unable to enter fully the realm of political ideas. By the time this period is at an end, a dramatic change is evident, the youngster's grasp of the political world is now recognizably adult."

Secondly, he points out that age growth in intellectual abstraction and moral judgment are the dominant factors in the growth of political concepts, while sex, intelligence, social class, and ethnic variability are only secondary. As he demonstrates, this growth is expressed in the quality of

thought, time perspective, motivation, knowledge, modes of reasoning, the decline of authoritarianism, etc.

Third, while cognitive development is a generalized and promising phenomenon, the affective ideological involvement and the active commitment is a privilege of a minority. This is an illustration of the impact of personality factors, family background, and cultural milieu that leads to social underdevelopment and suggests a clear need for systematic educational intervention by those who want to assume specific value-oriented citizenship education.

Fourth, the depth of need is demonstrated by a comparison. The sustained effects of what is called the German authoritarian paternalistic character -- after a quarter of a century experience of democratic political domination, with continuous economic and cultural rewards -- should be considered as an added illustration of how serious is the challenge for anticipatory socialization toward democratic values during adolescence, the last optional period for compulsory social intervention education.

Kohlberg made an important contribution (1972) with his proposed moral development stages, as an extension of Piaget's cognitive stage transformation during adolescence. As Kohlberg states (p. 165):

> "The shift in adolescence from concrete to formal operations, the ability now to see the given as only a subset of the possible and to spin out the alternatives, constitutes the necessary pre-condition for the transition from conventional to principled moral reasoning."

It is in adolescence, then, that the child has the cognitive capability to move from a conventional to a postconventional, reflective, or philosophic view of values and society. The rejection of conventional moral reasoning begins with the perception of relativism; the awareness that any given

society's definition of right and wrong, however legitimate, is only one among many, both in fact and theory. Kohlberg's contribution extends also into the implication for education, with a demonstration (Kohlberg and Blatt, 1972) of an option to "induce considerable upward stage movement in thought." Similar attempts by others using different intervention media should serve to give new meaning to the potential promise of the political decision toward qualitative democratization of secondary education. To this we would add that the experience of educators and politically involved practitioners -- in all shades of the ideological spectrum and in different societies -- seems to demonstrate the options for development in this realm. The best examples that we know from field situations are the ideological "youth movements," originally initiated in Europe and later spread through the initiation of political parties in different countries of the world.

So, from both the theoretical conceptualization and experience, it is suggested that in terms of immediate involvement and long-range impact this is a crucial stage. An effective learning environment should lay the foundation for involvement in moral issues (personal, family, community, nation, and world affairs), social integration (in friendship, family, and community), and political action. Self-identity, family integrity, community cultural development, and the whole meaning of the options of modernization -- for the individual, the group, and society at large -- may depend on systematic fostering in these domains.

(8) Peer influence - Our description of the fragmentation of social institutions, the marginality and ambiguity of adolescents' role and status, and their need for affiliation, status, communication, and intimacy may explain the basic need of adolescents for peer association. In our discussion

of social education we raised some of the research issues. Here we add that peers may serve to provide the necessary awareness, empathy, security, sharing, and actual support for autonomy in coping and problem-solving. But they also may serve as a medium for competition, lowered self-esteem, and even forced incapacity for social integration. In the design and development of educational and social programs, adolescent peer groups can be utilized as reference and support groups -- systematically and flexibly, for different objectives and according to different models -- for social learning interaction, heterosexual social development, emotional support, mutual problem-solving, tutoring, community improvement, etc. Peer organization should not mean the standard classroom age-cohort, but a fostering of different compositions for association in a community. The social aim of peer association intervention should be to promote readiness to share in mutual responsibility for self-development and improved quality of life in a significant ecological setting.

(9) Family involvement - In the discussion of parent-adolescent ambiguity of feeling and relations we raised the need for support. Our experience in developing curriculum programs for parent-adolescent communication suggests that there is a need and potential readiness for confrontation by both sides. The modular units in this program focused on three central themes: parent understanding of adolescence, parent understanding of the institution of secondary education and its impact on the adolescent, and the promotion of dialog between parents and adolescents. Such dialogs aim to facilitate mutual awareness of needs and search for improved options to produce improved quality of life in the family and better growth potential.

There is need for additional approaches to education in this domain and a more systematic evaluation of both the process and its impact.

(10) Crisis orientation - Even from our limited discussion of issues and problems, one could anticipate that adolescence can be a period of tension and crisis especially in this stage of modernization of family and society. But there is evidence about adolescents for whom crisis is not the experience. Our assumption is that to actualize the potentiality of adolescence we should value, foster, and capitalize on the crisis proposition. The extent to which the adolescent will be able to confront reality, develop new insights, and define personal commitments will depend on his initiation into crisis and the support that will be available during the process of "positive disorganization." A fostering program for adolescent learning should take responsibility to ferment the crisis -- building awareness and coping capacity through facilitation of a differentiation process of self in the context of environments -- to secure the adolescent's moral conscious and unconscious autonomy in relation to his family and community of origin. The "psychological moratorium" is available to ferment the crisis. But the problem is that most adolescent socializing agencies assume -- explicitly or implicitly -- that the available period is positive if the rating of adjustment by teachers and parents is "no problems," while we assume that crisis experience is necessary for psycho-social maturity.

(11) Responsibility - The first stage of liberalism and democratization of a social, political, and economic system is the awareness about the needs of disadvantaged groups for rights. So it is only natural that with the development of modernism, pressure for basic rights of oppressed groups is dominant. Since "man" (male) was a dominant person and "work" a dominant

need, male-worker rights dominated the initial stage of modernization. Then came the demand for "minority" rights -- national minorities, religious minorities, ethnic minorities, women, and youth. Here is not the place to discuss the order of events among groups, and for each group, and their consequences. For our discussion it is important to recognize that the quest for rights -- with all its justified and positive manifestations, raised for the future a new and parallel issue -- that of responsibility. While we should continue the confrontation with the need for rights, we should face also the need for responsibility. We assume that adolescents and youth (like these other groups) have the need for autonomy and so the need and capacity to be responsible for their performance. In the same way that they may be role-playing as egocentric, unresponsive, and irresponsible, they have the physical, cognitive, moral, and emotional potentiality for shared responsibility. They can be partners in their own crisis reorientation, share in the co-determination of institutional development toward self-renewal, and demonstrate their responsibility toward persons and social issues. If we see them as unresponsive and irresponsible it is because societies and families in the process of modernization forced on adolescents roles, position, status, and power that lead to such reaction.

From the experience of ideological youth organizations, underground political groups, communal enterprises, successful schools, and many families who fostered confrontation with responsibility, we can conceptualize that a learning environment seeking shared accomplishment (through co-determination in participatory democracy and commitment to crucial task-accomplishment) will produce youth with responsibility. We are proposing the development of experimenting schools that will test this basic proposition with a more

systematic, comparative, and longitudinal approach in the context of differential socio-cultural environments (Sanders, Smilansky, M., and Soffianos, 1975).

But to test this proposition we should recognize the dominant impact of appropriate leaders who must serve as models for identification and a frame of reference for teachers, adolescents, and parents. In a four-year experiment (Smilansky, M. and Nevo, D., 1966) for the development of an adolescent fostering boarding home program we realized how four different program directors transformed the above-mentioned characteristics of adolescents of the same ethnic and social group.

III. Effective Environments for Adolescent Education

Because of space limitation we shall be able only to list some of our basic assumptions and propositions. The preceding discussion of adolescent need assessment and our general approach to educational reform should serve to broaden the meaning behind some of the short statements. Only a search for better ways of need assessment and the creation, through a process of experimenting, of more effective environments for socialization from childhood to adulthood may contribute to a better awareness of the ambiguities involved and the need actualization of all concerned.

There is no school, or other social institution, that can be adapted to the needs of all adolescents and youth; no single framework that can serve even one adolescent for actualizing all his needs; and no one best method for teaching or socializing toward psycho-social maturity in the cognitive, emotional, and social domain. But there is a need and an option

for an experimental proposition. We have initiated preliminary work in conceptualizing development of experimenting schools (Smilansky, M., Sanders, and Coleman, 1973; Sanders, Smilansky, M., and Sofianos, 1974) and in the preparation of curriculum modules on self-identity, family building, and urbanism (Smilansky, M., et al., 1977). This work needs international cooperation and longitudinal and comparative evaluation so it may be adapted to different socio-cultural settings.

(a) School as an independent entity.

We perceive school as a social organism which must be rooted firmly in the needs and expectations of its students and community if it is to live and grow. It must be a responsible association for learning -- meaningful and valuable to the persons in the ecological context it serves. Those associated in the development of the school -- teachers, students, parents -- should feel that this is their school, for which they share responsibility, and must perform according to criteria of accountability.

This interpretation of the school's role is basic to our value orientation about adolescent education because in this socialization institution adolescents should be able to perceive a model of participatory democracy, a frame of reference for their value orientation, and a field experience for the development of personal autonomy, social relations, and community interpretation. This assumption
leads to the proposition that a school be limited in the number of participants (hundreds and not thousands, and even those sub-grouped into semi-autonomous mini-schools) and be managed cooperatively through co-determined, shared responsibility by students as well as teachers. In other words a

school for adolescents should be a micro-system of an active, open, experimenting, democratic community (see Smilansky, M. and Sanders, 1972).

This is important for adolescent education because adolescents need both autonomy for experimenting and security in the expected crisis developing in the process. The option for dialog in communication, insight, empathy, and personal responsibility must be available even to those limited in cognitive and social development. The standard large-scale secondary schools fail because they are bureaucratic and impersonal and provide a bad experience as to the meaning of democracy and community; the alternative "free schools" generally fail because of their incapacity to survive crisis, inexperienced personnel, economic and social pressures, and lack of continuity.

(b) The school as an associate member.

A school's autonomy will be based on basic security and trust achieved through cooperation in asociation with other schools and with the necessary support provided by a regional support system. As a member unit of a cooperative association for the development of adolescent education, each school -- and its members (administrators, teachers, students) -- will be open for continuous communication with, and responsible questioning by, interested and competent others engaged seriously and systematically in the same quest. Its team members will have an opportunity for reflecting on the experience of others and giving help to them as well as receiving it.

(c) The school as an experimenting institution.

As stated, we believe that schools, as presently designed and operated, are no longer adequate for socialization in an urban, industrial,

democratic, and secular society. They are not adequate to the task either from the point of view of society as a whole or from the point of view of adolescents who should learn how to live satisfying lives in a society of persistent and sometimes irreversible change. It is our asumption that no single type of school will be appropriate for all adolescents, but all adolescents should have access to an appropriate school, given their individual needs and the socio-cultural configuration of their community. The answer is in how we define "school as an experimenting proposition".

Since adolescence is a marginal stage -- with a need to search for identity and the development of a personal way to achieve psycho-social maturity and social integration -- the "experimenting" proposition is most appropriate. It may facilitate learning by persons to accommodate changes flexibly and share in the generation of ecological systems in accordance with their value-oriented needs.

(d) The school as a person-oriented institution.

The accelerated modernization process places heavy obligations on human personalities, particularly for persons from culturally disadvantaged groups. The individual must learn to accept personal responsibility in unprecedented form for active, self-directive participation in a rapidly changing and increasingly complex social environment. Responsibility for protecting personality and developing individual integrity is upon the individual alone or upon the individual with the support of a family in a process of adaptation to changing expectations. Only the prepared, well-equipped, secure, self-directive, autonomous, and socially responsible person -- competent to cooperate with others able to support him -- can cope successfully under these conditions. An adolescent student who perceives teachers

and students accepted and treated as "persons" and not as "objects" (in a bureaucratic network) will be socialized toward such an orientation as family builder and citizen.

The three negative adolescent behavior manifestations -- sexual waywardness, estrangement from family responsibility, and non-involvement in community heritage and development -- may have a common core. In traditional societies there was no "personhood." A child was valued according to his future value in extending the power of the extended family, the tribe, etc. A girl/woman was valued for her capacity to enhance the needs of her father, husband, and extended family. And a man was valued according to his power (in working, fighting, producing children, manipulating the environment, etc.). Religious institutions served well for thousands of years, because they sanctioned the power structure by an all embracing god who ordered the universe according to unquestionable needs for "law and order." The totalitarian regimes, with all their diversity, are actually attempting to role-play according to a similar prerogative of taking power from persons to systems in the name of the great idea of their leadership.

While the first stage of the modernization process produced the negative aspects of fragmentation we discussed. it facilitated the search for a new element of integration -- a person. Education for personhood may facilitate a new era of social integration -- the free choice commitment to family, community, and ethnic or national heritage, not to serve as an extension of intergenerational power but to actualize a need for personhood,

empathy, affiliation, and social intercourse in a community of sharing, mutual enrichment, and improvement of the quality of life.

(e) School as a cognitively oriented but affectively based system.

Modernization is a complex, comprehensive, dynamic transformation process. It is based on science, technology, space and time reduction, national and international interdependence, urbanism, secularism, bureaucracy, and accelerated change. Those who don't want to be culturally disadvantaged should develop the capacity for cognitively oriented performance. At the same time, institutional fragmentation, large bureaucratic organizations, expanded options, meritocracy, competition, cultural changes, extended family fragmentation, etc., produce daily pressure on personal, mental, and even physical health. There are feelings of anxiety, loneliness, and incapacity to cope with the emerging insecurity and crisis potentialities. So there is a need for systematic fostering attempts to secure an affective base for cultivation of personal-psychological trust, security, and autonomy. Intervention for us is a nourishment of the transaction capacity between persons. An environment to promote learning toward aims which are deemed worthwhile should be developed. Since adolescence is a stage for transformation toward higher levels of cognitive, moral, and affective competence (we illustrated their interdependence in our discussion of need assessment), a fostering social-psychological environment for adolescents should consider the cognitive and affective domains as different dimensions in an inseparable configuration of human forces. These assumptions have implications for institutional education practices. Some implications are: mutual responsibility of staff and students for fostering a genuine and person-oriented

learning environment; guarantee of educational access through mutually accepted responsibilities in a helping relationship (peer tutoring, peer counselling, teacher-student and student-parent task-oriented teams, social organization according to subject-matter or problem-oriented modular courses, etc.); focus on self-identity, anticipatory socialization toward family building and urbanism; systematic confrontation with social problems in general and those in the context of community ecology in particular; and dynamic diagnosis as a new evaluation pattern.

(f) School as a helping and extended system.

Schools should be developed as a social arrangement for helping adolescents to learn to be in charge of their own lives and to promote their integration with the life of the community. Being in charge of one's own life implies the following capacities: to be aware of oneself and the environment, to understand something and be understanding of somebody, and to engage in the environment in the sense of transacting with it and choosing with regard to it. Thus the experimenting school for adolescents may be viewed as a helping system, because it is an adolescent-centered social arrangement that facilitates learning and cultivates the capacities of its participants. It can be defined as an extended system because it integrates students with the life of the community.

The assumption underlying such an integration is that school is not just a building, a closed system of professional teachers and adolescents. Adolescents need a variety of experiences for learning self-development and coping with the reality of life. The present secondary school is unable to fulfill adolescent needs. The answer is not a retreat to the days when "common man" adolescents were sent to work in apprenticeships--because the

factory, office, and store are even more boring and educationally limited than the present secondary schools (Driben, 1974). The failure of the Russian School Reform initiated by Khruschev in 1959 and a work program in a boarding youth village in Israel (Smilansky, M. and Nevo, 1972) should be considered. Instead we suggest that the school should be a base for an open social system. It will collaborate with other social agencies in preparing adolescents for living in modernizing societies. Since experiences outside the classroom are important potential vehicles for learning, institutional settings and potential opportunities in the community must be arranged to serve as learning environments.

Supportive staff (partially paid and partially volunteers) of parents and community members should be associated with school personnel. Some staff enrichment will develop because students must gain experience in the world of work, child care, and function of social service institutions and must give services to their community in a systematic way.

Students should become able to observe and practice adult roles and activities in a diversity of circumstances. In an agrarian society this was achieved naturally because of involvement within an extended family, integration of residence and work place, child labor, limited work roles, and mostly their primitive nature (consistency of sex roles, etc). Today it can be achieved through school-community interchange and cooperation, in ways that can be designed through evaluation of available options in different countries.

(g) Work experience, technological education, and vocational training

In our discussion of the need to enrich the meaning of adolescent socialization, we assumed that different forms of work experience should

have positive impact, in helping adolescents to confront the meaning of work as a basic social role, to understand career options, and to serve the need of community involvement and social integration. Technological education is a different proposition -- explained in terms of the need of adolescents in industrialized society to understand technology and to perceive its application through both their science courses and social studies. But that is not the focus of this discussion. Here we want to suggest that for some youth there is a positive option in early entrance into vocational technical education. There are three reasons why vocational-technical education was degraded and neglected in many Western democracies mainly after World War II. First was the aspiration toward a common secondary school which originated in the U.S. during the 30's as part of the New Deal and the progressive education era. It appeared in England in the form of a "comprehensive school" as a labor party initiative against an early selective system that maintained the continuation of a socially stratified school and society, then spread in the 50's to Scandinavia and other countries, first in the most comprehensive school reform of Sweden, then in France, and later in Israel and other countries. Second, persons in industry, economists, and educators assumed that the accelerated phase of technological innovation made vocational schools (curriculum, equipment, and instructors) obsolete, and for economic progress schools should be limited to laying foundations in cognitive development, basic skills, and social adjustment with vocational training left to the place of production. And third, the prolongation of schooling postponed the vocational training programs to the post-secondary period, junior colleges in the U.S. and technical colleges of different forms in England and similar places.

While we recognize the reasoning behind this trend it seems to us that for some adolescents in all societies, and for most adolescents in developing countries, early vocational training should be preferred. In Israel, during the 60's, it was decided to give priority to the development of vocational-technical education, by reorganizing the curriculum, providing a new differentiation in the available programs, opening the way toward higher education to technical school graduates, and so changing the status of vocational education and allocating larger resources for both school improvement and student support.

The technical school has the distinct advantage of providing an opportunity to its candidates to adjust and progress for the following reasons (Smilansky, M., 1974):

a) It includes a practical work program, where the youth can see the relationship between the theoretical hypotheses and assumptions and their applicability in the field. Therefore, those who do not come from an intellectually stimulating environment and have not reached the stage of "formal operational thinking" will enjoy learning and will progress further in this type of learning system.

b) The program is directed at defined occupations. Therefore, those who do not come from the middle class and are not ready to postpone immediate gratification for more distant and general aims will be able to see a reason for learning in this framework and will pursue their studies.

c) The program is varied and has many rewarding opportunities, at least during part of the day, even for those who do not show readiness to attend and persevere.

d) The program is graded and can offer the pupil a constant reading of his adjustment and progress. It provides him with immediate reinforcement, which is vital to the adolescent who is a first-generation literate.

e) The program is different for different occupations and levels. Therefore, it allows immediate application and advanced channeling according to the different levels of achievement, ability, and aptitudes, without harming the

feeling of achievement and giving the opportunity to every one to attain a certain degree of success.

f) Since the average ability of most of the pupils is lower, it is possible to maintain within this framework the feeling of achievement and progress -- even in the initial stages of adjustment.

g) The program socializes toward an occupation and does not lead only to another stage of learning, as academic high schools do. This is very important for those who come from poor families where often the head of the family ages early and stops working. During a family crisis a youth who has completed a technical high school program can support the family either partially or totally.

Although there are many advantages to the technical high school, there are also limitations. We must be aware of the following developments:

a) The vocational school might lower the aspiration level of the pupils and their parents because the youth can complete his studies and learn an occupation in a shorter time and with less intellectual effort. For example, a pupil in a technical school who does not progress as he should in a high standard electronics course is directed to an easier and shorter program, while he knows that if he were in an academic school, without intellectual effort he would be suspended from school.

b) Attending a vocational school might bar entry into certain occupations. By early specialization, the youth has limited his horizons -- at a stage before "formal thinking" and before he has the ability to see things in broader perspective.

c) The vocational school's practical work is time-consuming. Therefore it limits the pupil's opportunity for intellectual and social development.

d) The vocational school will accustom its pupils to a social environment where the value patterns and behavior are like those of workers or technicians -- while at least some of the pupils are capable of striving for further academic studies to perform on a higher intellectual level.

These positive and negative possibilities indicate the need to create learning opportunities in various types of institutions, to determine

carefully criteria for student selection among the available opportunities, and to establish additional opportunities beyond those in the individual institutions by providing free transfer options between different institutions, by diagnosing pupils' condition, and by providing constant counselling and guidance.

The success of the Israeli attempt to diversify technical education was beyond expectations. Although there are many limitations in the programs developed, the number of students in vocational-technical education doubled during Israel's five year plan. Today more than half of Israeli secondary education students are in vocational education (technical-industrial, agricultural, and maritime), and more than 60 percent of them are from socially disadvantaged backgrounds. A recommendation of the Israeli long-range planning task force (Peled, et al., June 1976) was to increase the proportion of those in the different forms of vocational-technical education up to two-thirds of all secondary school students, assuming that this will be achieved mainly by absorbing into the mainstream of secondary schooling most of those who are currently dropouts.

This decision should not be accepted as an ideal choice in disregard of the above discussed negative aspects of early vocational schooling. It is only a realization that under the present conditions of social readiness and school readiness for change, this is one option to give an opportunity to a large segment of the population to become socially integrated and economically assured citizens during the coming decade. This basic decision should also be considered along with the propositions to further improve the quality of secondary technical education previously discussed.

(h) A boarding-out option

There are both adolescents and families who for different reasons need for their self-actualization the option of separation during at least part of the secondary education period. Boarding-out options (in boarding schools, boarding homes, and other facilities) were historically available in different societies, mainly for the upper classes who were able to afford it, but also for others. Boarding-out education was sought for different social-psychological reasons of the family or society. Ruling regimes used it to recruit future managerial manpower and military service conscripts, and to solve social problems; the church searched for its leadership and missionaries; artisans and later industrialists recruited their apprenticeship manpower; and parents used it to solve economic needs or to facilitate social mobility of their offspring or because of internal family crisis.

Later the nuclear family "inward-bound" intimacy, democratization or because of internal family crisis of local and regional secondary education, the social-consciousness about youth work, the psychological mental health propositions about mother-child separation, the rising costs of good quality residence facilities, and the adolescent quest for individualized-personalized socialization combined to decrease the relative status of boarding-out education. An extreme example in this direction is the U.S. where boarding education was completely discarded and an assumption prevailed that the worst family environment is better than institutional placement. In Israel, because of very different pressures (the need to absorb large numbers of refugee children during the Hitler regime, collective value-orientation of socialist pioneers and the availability of the kibbutz option, demands for

vocational training not available locally, the need for agricultural education for those with no farm-life background, the need for the army to prepare early trained manpower, and a cultural-religious tradition of leaving home during adolescence in search of traditional intellectualism), a large-scale and diversified network of boarding-out educational facilities of varying direction and quality developed. Today about one-fourth of all 14-17 year old secondary students and one-third of all 16-17 year old students are in boarding facilities.

All the positive and negative aspects of this option cannot be discussed here. The variety of institutional arrangements available in Israel provides programs with different goals, tasks, and quality of performance (integration of disadvantaged youth in kibbutz regular education, special youth socialization programs in the kibbutz by an organization called Youth Aliyah, specialized para-military and technical schools of the armed services branches, religious education schools, youth villages -- both general and religious, agricultural and maritime schools, special schools for the more gifted among the disadvantaged, special programs for the mentally retarded or emotionally disturbed, etc.). Although some evaluations of programs in Israel are available (Fuerstein, R., 1972; Smilansky, M. and Nevo, D., 1977; Aries, 1962), they are still very limited relative to the need and potential learning opportunity for all concerned. What seems to be important for this discussion is that there is no question that many adolescents and families need an option of part-time or full-time separation from the family, and that the "total" environment of a boarding institution is a potentially powerful intervention medium for many

youth. Even in terms of economic efficiency, a study of the cost-effectiveness of the army, departments of labor and agriculture and a follow-up evaluation for the Ministry of Education of the program for the more gifted among the disadvantaged (Smilansky, M. and Nevo, D., Chapters 9 and 11, 1976) demonstrate that the increased investment may have a high "production" return.

IV. Conclusions and Recommendations

On the basis of all the evidence discussed, for developing countries we recommend family building and youth education projects, that will also include care for young children. This recommendation will be capitalizing on what we learned from both family-oriented programs and youth programs.

Adolescence and youth are potentially promising periods for fostering programs. At present these age groups are either neglected or framed in rigid, archaic forms of secondary schooling -- which are not adapted to the needs of their populations for developing the capacity for self-renewal and problem-solving and for social and economic planning of less developed countries. Experimental programs that are framed in a broader context of family building and community development need to be developed.

Since I suggested some conceptual options for a new focus to adolescent education, the next step should be a more detailed discussion of case studies of new models in youth education. Then priority should be allocated to experimenting in adaptation of potentially relevant models to different ecological settings.

Adolescent and youth education may also be supportive of better elementary education. The concern has been expressed that in less developed

countries, elementary education would suffer if limited resources were channeled to adolescent youth programs. Although the design and development of elementary education should be a topic for special independent consideration, one remark may be relevant here. It should be possible in less developed countries to design adolescent and youth education on a contract basis. About half of an adolescent's weekly schedule could be devoted to tutorial work in preschool and elementary education (as well as in other community improvement responsibilities) with professional supervision provided by qualified teachers and counselors and the other half could be geared toward the other needs for self-development and coping capacity.

Needs of working mothers for day-care centers can be met through programs for adolescents, youth, and family building. For working mothers who need institutional care for their younger children, day-care centers should be established as an integrated part of programs for adolescents. A school for adolescents and youth should be a laboratory of experience in fostering younger children, teaching adolescents how children develop and providing training in responsible action for human care. Also, such centers would provide opportunities for partially paid work for youth and mothers under the supervision of qualified teachers. Training of counselors to guide adolescents in learning and performing such new roles can be developed -- conceptually and practically — and adapted to the community.

For educational intervention to have a long-range impact it must be: longitudinal, adaptable, family building oriented, and a community development supportive effort. A community for this purpose could be an eco-system of a rural village, an urban setting, or a boarding school.

I assume that powerful fostering programs, adapted to different needs and options in developing countries, can be developed if there is a commitment to such a proposition. However, it is not possible to translate conceptual hypothetical propositions into programs adapted to the needs of people in developing countries, except through a process of systematic experimenting. There is a need to support a research and development project committed to this goal. Its objectives would be to further conceptualize and adapt to the realities of the community our general propositions for development. This could be done through the following activities: need assessment, conceptualization of options, incorporation of elements of other programs into an integrated resource program, training of initial leadership staff for these countries, implementation, evaluation, etc.

In the U.S. more than 200 million dollars were invested during the past decade (by different government agencies, public foundations, and others) in research and experimental programs that may be relevant to our propositions for developing countries. Investments (of a smaller scale but in some cases not less significant) in other countries (England, Sweden, Israel, Canada, and others) also produced options that should be explored, evaluated, and utilized. Through such a project, the World Bank could capitalize on these large-scale investments and provide a valuable input for developing countries willing to associate. The project could contribute guidelines for planning and development of modular programs, curriculum units, media for learning, and training or provision of senior staff from developing countries who would initiate and coordinate the program and provide consultation in the process of local development and evaluation.

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